C

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,641	02/05/2004	James J. Johnston	6884-14	5776

7590 03/20/2006

Frederick J. Haesche
McCormick, Paulding & Huber LLP
CityPlace II
185 Asylum Street
Hartford, CT 06103

EXAMINER	
FASTOVSKY, LEONID M	

ART UNIT	PAPER NUMBER
3742	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/772,641	JOHNSTON, JAMES J.	
	Examiner	Art Unit	
	Leonid M Fastovsky	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) *28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27 and 29-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20040602*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1- 5, 21- 25, 27, 29-32 and 35-36 rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al (2004/0035854) (as evidenced by Suganthan et al U.S. 6,639,562) in view of Hand U.S. 4,817,347) and further in view of Fujihara (3,657,516).

Cheng teaches a heating element assembly 10 comprising an electrical heating element 11 an axially elongated substantially flat bundle formed by a multiplicity of continuous carbon fibers which transform electrical energy applied thereto to a heating energy, the bundle having generally flat upper and lower surface portions substantially parallel to each other, and an inherently dielectric sheath 12 made of thermoplastic polyurethane (TPU) (in view of extrinsic evidence provided by Suganthan, col. 2, lines 48-52), embracing the bundle 11, and an upper layer having a lower face disposed in overlying direct contact engagement and unconnected relation to the upper surface of the bundle, the layers have substantially the same thickness, but does not explicitly disclose the lower layer bonded to the bundle of fibers. Hand discloses a heated panel comprising bonded strip 13 of thermoplastic polyurethane (col. 4, lines 5-15 and 26-33). It would have been obvious to one having ordinary skill in the art to modify Cheng's dielectric

sheath 12 with a lower layer having an upper face and being bonded to the bundle of fibers as taught by Hand in order to secure rigidity of the heating element .

However, Cheng does not disclose a diameter and an electrical resistance of the heating element comprising carbon fiber and exact number of carbon fibers. Fujihara discloses carbon fiber heating elements 1 having a diameter of 7-10 micron and a resistance range of 0.24 ohm/square foot (page 3, lines 5-20). It would have been obvious to one having ordinary skill in the art to modify Cheng's invention to include a diameter and resistance range of carbon fiber heating element as taught by Fujihara and comprise from several hundred to several thousand carbon fibers in Cheng's invention in order to make the flat heating cable more durable.

As for claim 29, it would have been obvious to modify Cheng's invention to make one layer wider than another as a design choice since applicant has not discloses that this limitation solves a problem unsolved by the prior art.

3. Claims 6-11, 15-16,19 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Hand and Fujihara and further in view of McMahon et al.

Cheng in view of Hand and Fujihara discloses substantially the claimed invention, but does not disclose polyester and Kapton.

McMahon discloses a bundle of carbon fibers ranging from 300 to 300,00 (col. 9, lines 57-65), separate webs (Fig. 1-2), thermoplastic material for the sheath comprising polyester (col. 2, lines 63-67) and Kapton (col. 14, lines 24-39).

It would have been obvious to one having ordinary skill in the art to modify the invention

of Cheng in view of Hand and Fujihara to use a bundle of carbon fiber, separate webs, polyester and Kapon material as taught by McMahon in order to make the carbon heating element assembly more durable and thus prolonging the life of the heater (col. 2, lines 25-48).

As for claims 15-16, it would have been obvious to modify the invention of Cheng in view of Hand and Fujihara and McMahon to make webs of equal or unequal width in order to satisfy needs of the user.

4. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Hand, Fujihara and McMahon and further in view of Batiwalla et al (4,761,541).

Cheng in view of Hand, Fujihara and McMahon discloses substantially the claimed invention, but does not disclose a pressure sensitive adhesive, ultrasonic welds, transverse width and the layer wider than another. McMahon discloses a heater having carbon fibers and comprising a pressure-sensitive adhesive (col. 9, lines 30-48). It would have been obvious to one having ordinary skill in the art to modify the invention of Cheng in view of Fujihara, Hand and McMahon to bon the heater layers by a pressure-sensitive adhesive as taught by Batiwalla in order to keep them safely in place and use a heat activated adhesive, ultrasonic welds as an obvious functional equivalent.

As for claim 16, it would have been obvious to modify the invention of Cheng in view of Fujihara and McMahon to make webs unequal or equal width to satisfy needs of the User.

5. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Hand and Fujihara and further in view of Kochman et al.

Cheng in view of Hand and Fujihara discloses substantially the claimed invention, but does not disclose coloring to distinguish the layers. Kochman discloses a soft heating element (Fig. 1-2) and thread/fibers 2 can be laminated between color sensitive polymer 15 (col. 11, lines 20-57). It would have been obvious to one having ordinary skill in the art to modify the invention of Cheng in view of Hand and Fujihara to adopt coloring of layer of polymer as taught by Kochman in order to distinguish it form non-colored.

6. Claims 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Hand and Fujihara and further in view of Arx et al.

Cheng in view of Hand and Fujihara discloses substantially the claimed invention, but does not disclose one layer being thicker than another. Arx discloses a heating element 16, a conductive carbon fiber (col. 1, lines 50-57) and one layer-section 14 is thicker than another layer-section 12. It would have been obvious to one having ordinary skill in the art to modify the invention of Cheng in view of Hand and Fujihara to include one layer thicker than another as taught by Arx in order to be more thermally isolative.

7. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Hand, Fujihara and McMahon and further in view of Arx.

Cheng in view of Hand, Fujihara and McMahon discloses substantially the claimed invention, but does not disclose one layer being thicker than another. Arx discloses a heating element 16, a conductive carbon fiber (col. 1, lines 50-57) and one layer-section

14 is thicker than another layer-section 12. It would have been obvious to one having ordinary skill in the art to modify the invention of Cheng in view of Fujihara, Hand and McMahon to include one layer thicker than another as taught by Arx in order to be more thermally isolative.

Response to Arguments

8. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid M Fastovsky whose telephone number is 571-272-4778. The examiner can normally be reached on M-Th. 8.00 am -6.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eric Keasel
Eric Keasel
Primary Examiner
TC 3700

L Fastovsky
Leonid M Fastovsky
Examiner

3/01/06